SONY

3-756-291-21 (2)

Stereo Cassette Deck

Operating Instructions

TC-RX606ES

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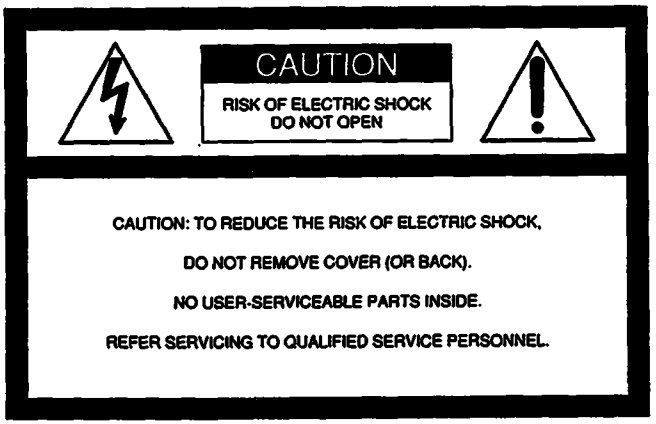
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Owner's Record

The model and serial numbers are located on the rear of the unit. Record the serial number in the space provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. TC-RX606ES Serial No. _____

INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

CAUTION

You are cautioned that any change or modifications not expressly approved in this manual could void your authority to operate this equipment.

For the customers in Canada

CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

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Features

For higher quality recording/playback
- **The Dolby HX PRO* system** which improves the linearity of the tape's high-range response during recording.
- **B, C and S type Dolby NR* systems** which reduce tape noise.
- **Automatic calibration** which ensures optimum recording conditions to bring out the best in every tape.
- **Ceramic cassette holder** for improved stability of tape running during playback and recording.

For your convenience
- **Quick reversing** at the end of a tape to minimize interruptions during playback and recording.
- **The Multi-AMS and Memory Play functions** which provide easy access to a desired selection.
- **Timer-activated playback and recording** through the use of an optional timer.
- **Automatic switching between line and microphone input** when recording with a microphone.

For easier operation
- **Easy-to-read linear counter** which shows the elapsed recording or playing time.

* Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
"DOLBY", the double-D symbol ⧈ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Precautions

On safety
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it will not be used for a long time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.

On operation
- When the unit is not used, turn the power off to conserve energy and to extend the useful life of your unit.
- Because of a safety mechanism, the function buttons will not operate if the cassette holder is not completely closed, if there is no cassette in the cassette holder, or if a cassette has been incorrectly inserted into the cassette holder.

On head cleaning
The head and tape path should be cleaned after every ten hours of operation. Dirty heads and a dirty tape path may cause:
- — loss of high-frequency response
- — loss of sound volume
- — sound drop-out

If you have any questions or problems concerning your unit, please contact your nearest Sony dealer.

For the customers in the U.S.A.
For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS".

Unpacking

Checking the Supplied Accessories

Make sure that the following accessories are included with your unit.
- Audio connecting cords (2)

Notes on Installation

- Place the unit with the front panel facing you in a location with adequate air circulation to prevent overheating of the unit.
- Do not place the unit:
  - — near heat sources such as radiators or air ducts.
  - — in places subject to direct sunlight, excessive dust, mechanical vibration or shock.
  - — in an inclined position.
  - — on a rug or other soft surfaces that would block the ventilation holes on the bottom of the unit.

Do not throw away the carton and the packing material
They will come in handy when transporting the unit or shipping it for servicing.

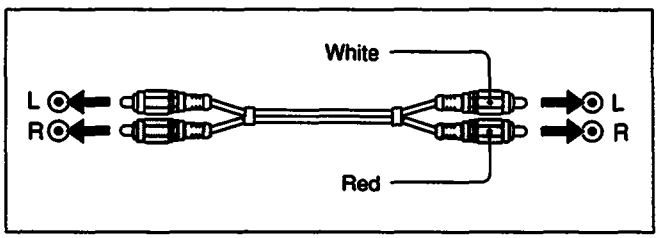
Checking the Operating Voltage

- Operate the unit only on 120 V AC, 60 Hz.
- Before operating the unit, be sure that the operating voltage of your unit is identical with that of your local power supply.

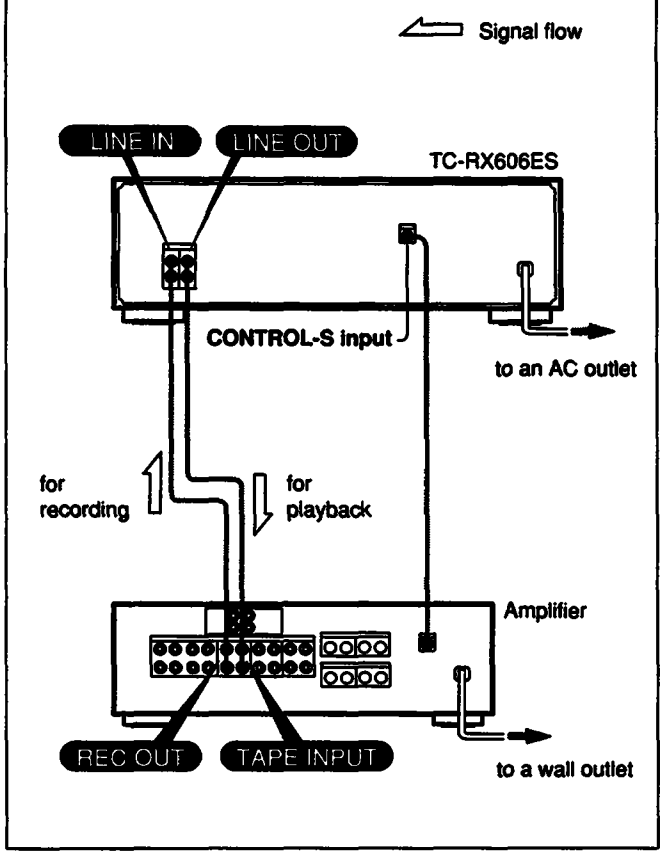
Hooking Up the System

Before You Begin

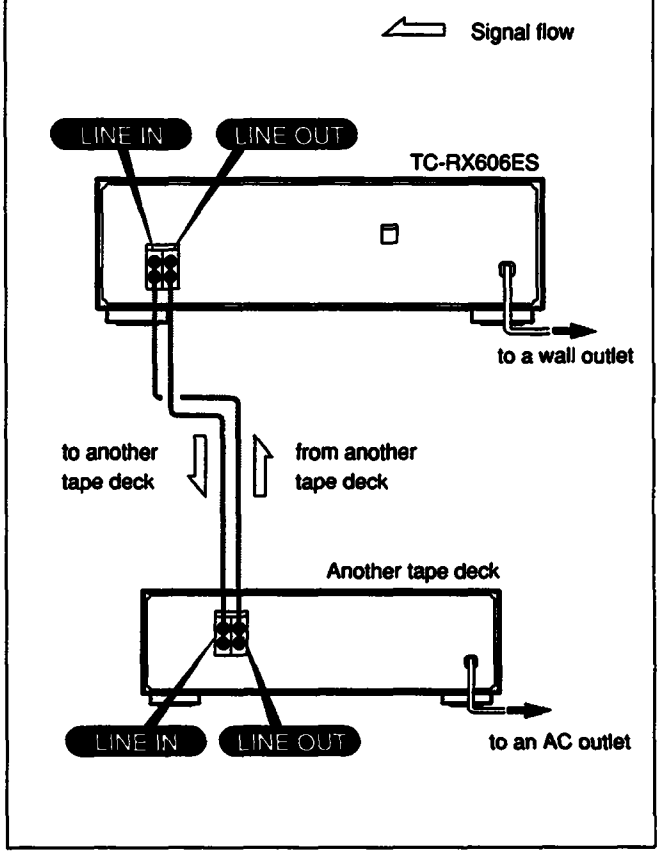
- Turn off the power to all equipment to be connected before making any connection.
- Note that the red plug of the supplied connecting cord is for right-channel (R) connection and the white plug for left-channel (L) connection.
- The connecting cords should be fully inserted into the jacks. A loose connection may cause hum pickup.



Hook-up Example



Hook-up for Tape Dubbing

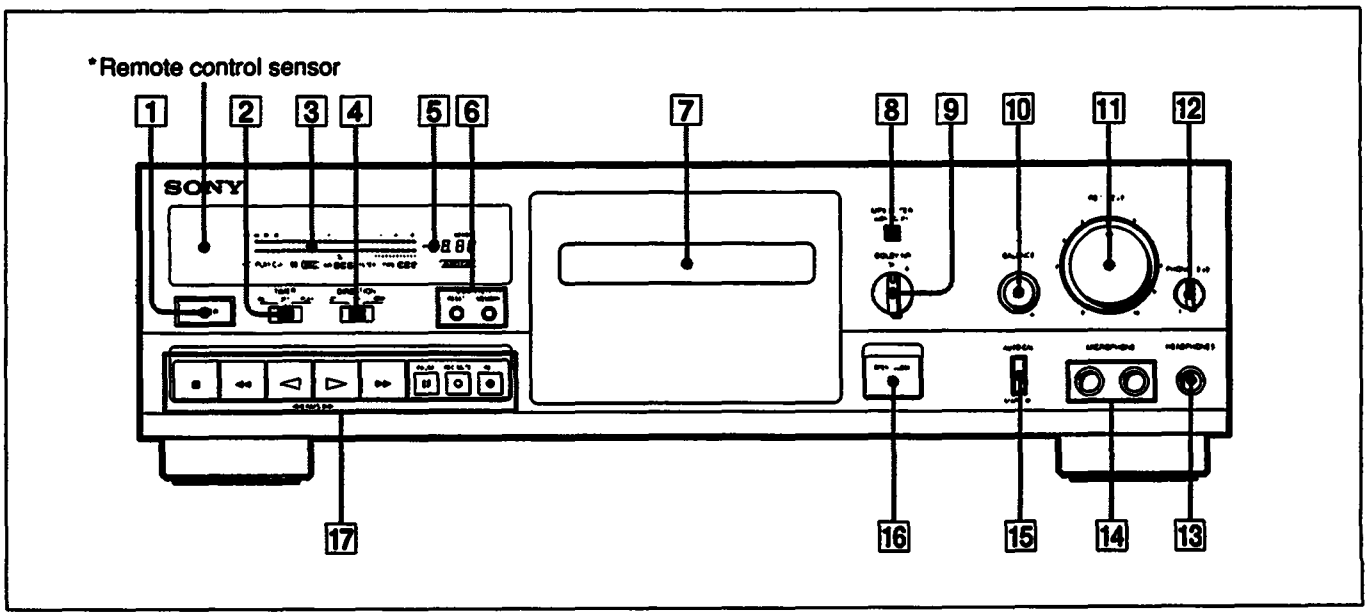


Note on the CONTROL-S input

To remotely control this unit through a receiver or amplifier, connect the input on this unit to the CONTROL-S output on a Sony receiver or amplifier, with a CONTROL-S cable (optional). When this connection is used, only remote commands sent through the receiver or amplifier will be executed. The remote sensor on this unit will not function.

Identifying the Parts

Front Panel



For details, refer to the page number(s) indicated in parentheses.

1 **POWER switch**
2 **TIMER switch (page 16)**
3 **Peak level meter (page 13)**
4 **DIRECTION mode switch (pages 7 and 11)**
5 **Linear counter (page 10)**
6 **COUNTER buttons**
RESET button (page 10)
MEMORY button (pages 9 and 10)
7 **Cassette holder**
8 **MPX FILTER button (page 13)**
9 **DOLBY NR (noise reduction) switch (pages 7 and 11)**
10 **BALANCE control (page 11)**
11 **REC (recording) LEVEL control (pages 11 and 13)**
12 **PHONE (headphones) LEVEL control (page 7)**
13 **HEADPHONES jack (stereo phone jack) (page 7)**
14 **MICROPHONE jacks (phone jacks)**
15 **AUTO CAL button (page 14)**
16 **⏏ OPEN/CLOSE button**

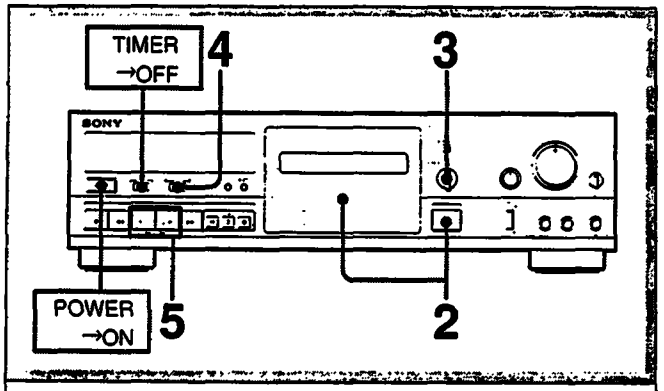
17 **Tape operation buttons**
■ (stop) button
◀◀ (leftward fast winding) (Multi-AMS**) button
◀ (reverse play) button
▶ (forward play) button
▶▶ (rightward fast winding) (Multi-AMS**) button
❚❚ PAUSE button
○ REC MUTE (record muting) button (page 15)
● REC (recording) button

***Remote control sensor**
You can remotely control this cassette deck with:
— A remote commander that came with a Sony amplifier or receiver if it has the ■ mark and cassette deck control capability.
— An optional Sony remote commander with the ■ mark and cassette deck control capability.

****AMS** is an abbreviation for Automatic Music Sensor.

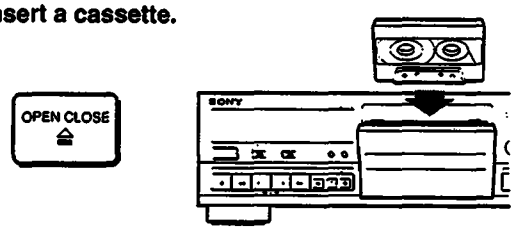
Playing Back

Follow the procedure below to play back a cassette.



1 **Turn on the amplifier and select the tape function.**

2 **Insert a cassette.**



3 **Set DOLBY NR to the same position that was used when the cassette was recorded.**

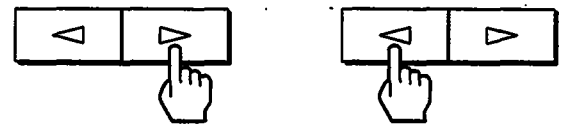
4 **Set DIRECTION.**

To playback one side	
To playback both sides	
To playback both sides continuously*	

* After playing back five times, the deck automatically stops.

5 **Press ◄ or ► to start playback.**

From the front side: **From the reverse side:**



To stop playback, press the ■ button.
To stop playback momentarily, press the ❚❚ button.
To restart playback, press the ❚❚, ◄ or ► button.
To fastwind a tape rightward, press the ►► button in stop mode.
To fastwind the tape leftward, press the ◄◄ button in stop mode.

Set the TIMER switch to OFF
Otherwise, playback will start automatically when the power is turned on.

Is it necessary to set the tape type being used?
No. The deck has an automatic tape type detection system.

To start operations while the cassette holder is open
Operations may be started while the cassette holder is open. For example, when the ◄ or ► button is pressed while the cassette holder is open, the cassette holder will close and playback will start. Similarly, pressing the ◄◄, ►►, or ❚❚ buttons while the cassette holder is open will close the cassette holder and start the respective operation.

To change to recording mode during playback
Keeping the ◄ or ► button pressed, press the ● button. The unit immediately switches from playback to recording without stopping the tape. This is useful when editing previously recorded material.

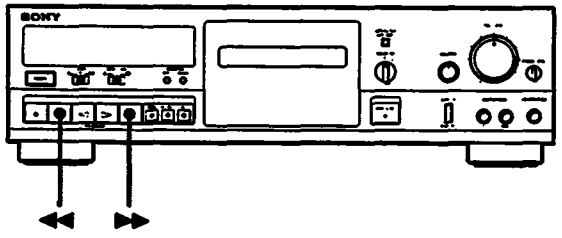
For headphone listening
Connect the headphone plug to the HEADPHONES jack. The listening level can be controlled with the PHONE LEVEL control.

What is the Dolby NR system?
The Dolby NR (noise reduction) system reduces tape hiss noise in low-level, high-frequency signals by boosting the signals during recording and lowering them during playback. The Dolby S NR system provides the highest reduction in tape hiss noise in both low and high frequencies.

Note
The Dolby HX PRO system is effective only during recording, not during playback.

Locating a Selection — Multi-AMS (Automatic Music Sensor)

By detecting the blank space between selections, the Multi-AMS function allows you to skip up to 30 selections during fast forwarding or reversing to locate the beginning of selection.

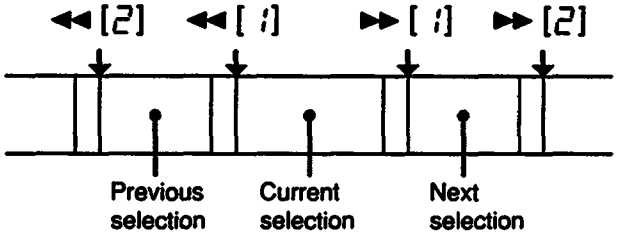


During playback, press ◀◀ or ▶▶ as many times as the number of selections to be skipped.

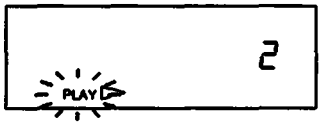
Playback direction indicator	To locate a selection after the current one	To locate a selection before the current one*
▷	▶▶	◀◀
◁	◀◀	▶▶

* Pressing ◀◀ or ▶▶ once locates the beginning of the current selection.

Tape direction indicator: ▷
↓: Beginning of selection



- The number of selections to be skipped, which replaces the counter indication, decreases by one each time a blank space is detected.
- The PLAY indicator flashes during Multi-AMS operation.
- When the beginning of desired selection is reached, the counter indication returns and playback automatically restarts.



Modifying the indicated number of selections to be skipped
The number of selections to be skipped may be modified by pressing the ◀◀ or ▶▶ button at any time, even during Multi-AMS operation.

Regarding changes in the indicated number
The indicated number of selections to be skipped may change even as it is being set due to the detection of blank spaces during fastwinding of the unit.

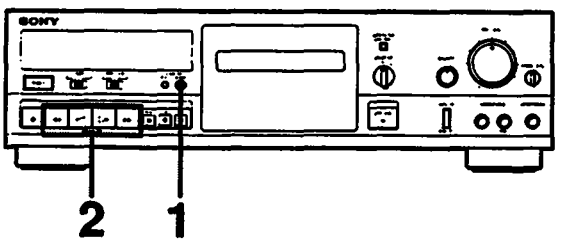
The Multi-AMS may skip a selection in the following cases:
- If the ▶▶ (or ◀◀) button is pressed immediately before the following selection.
- If there is noise in the space between selections.
- If the space is less than four seconds long.

The Multi-AMS will treat the following as blanks:
- a long pause in the music
- a passage of low frequencies or very low volume
- a gradual increase or decrease in volume

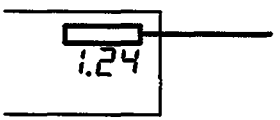
Note:
Even if the DIRECTION mode switch is set to ⇨, the Multi-AMS function does not extend to the other side, but stops when that side comes to an end.

Starting Playing Back After Rewinding — Auto Play

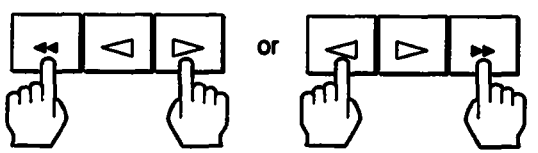
The Auto Play function automatically starts playing back a cassette after fast winding it to the beginning.



1 **Make sure the MEMORY indicator is off.**
If it is not, press MEMORY.



2 **While pressing ◄ or ►, press ◄◄ or ►►.**

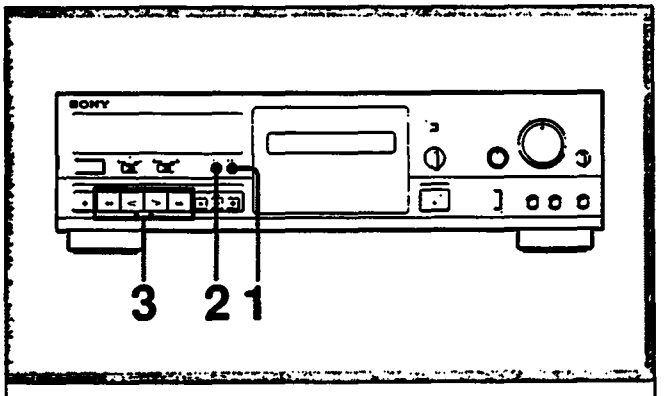


From the beginning of	While pressing...
front side	►, press ◄◄.
reverse side	◄, press ►►.

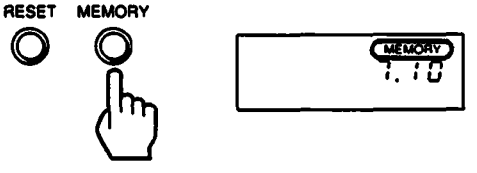
Locating a Desired Playback Position — Memory Play

How to Memorize and Locate a Desired Playback Position

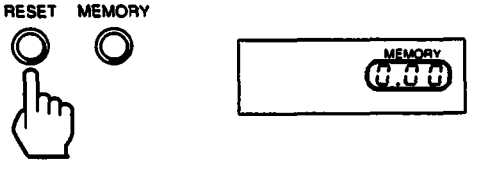
The Memory Play function allows you to use the counter to record a desired position on a cassette for fast relocation and automatic playback later.



1 **Press MEMORY to activate the Memory Play function.**



2 **Press RESET to reset the counter at the desired position.**



The desired position is memorized.

3 **To return to the desired position**
Check the direction indicator and press the respective buttons shown below.

Direction Indicator	While pressing...
PLAY ▷	▶, press ◀◀.
◁ PLAY	◀, press ▶▶.

Returning to the memorized position in stop mode — Memory Stop
If you press only the ◀◀ or ▶▶ button when the MEMORY indicator is on in the stop mode, the tape rewinds and the unit stops when the counter reaches 0.00.
Be sure to first stop playback before activating the Memory Stop function, otherwise the Multi-AMS function will activate.

To deactivate the Memory Play function
Press the MEMORY button, turning off the MEMORY indicator.

Note on Memory Play/Stop
In actuality, the tape is rewound to slightly short of 0.00.

Do not turn off the power while using the counter
Turning the power off, then on again resets the counter to 0.00.

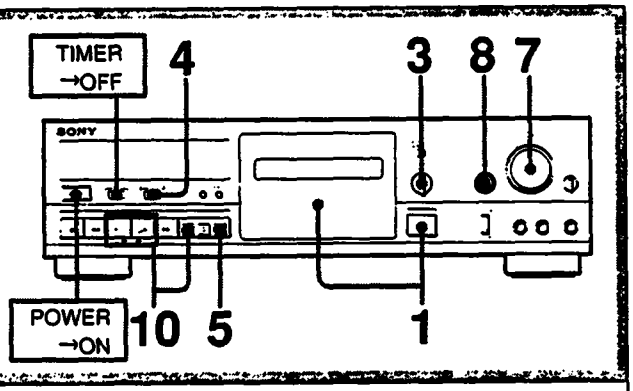
The Accuracy of the Linear Counter

Since the counter is not a digital clock, the number will differ from the actual elapsed playback or recording time by a few minutes, depending on such factors as tape length and hub size.

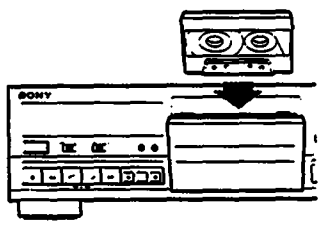
Recording

How to Record to a Cassette

Follow this procedure to record a source on a cassette.



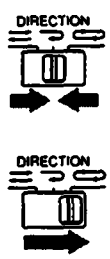
1 **Insert a cassette.**



2 **Perform automatic calibration, if desired (see page 14).**
If not, go to step 3.

3 **Set Dolby NR.**

4 **Set DIRECTION.**

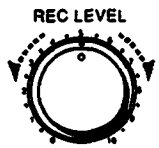
To record on one side	
To record on both sides	

5 **Press ● to enter the recording pause mode.**

Note
A flashing ◁ or ▷ indicator indicates that recording is possible on that side.
If the cassette tab has been removed to prevent accidental erasure, the indicator will flash only for the side that can be recorded. If both tabs have been removed, there will be no response even when ● is pressed.

6 **Play the program source to be recorded.**

7 **Turn REC LEVEL to adjust the recording level.**



See "Adjusting the Recording Level" on page 13.

8 **Turn BALANCE to adjust the balance.**

9 **Restart the program source, if required.**

(Continued on next page.)

Recording

(Continued from previous page.)

10 **Press ❚❚, ◄◄ or ►► to start recording.**

To record on the front side of the cassette	
When ▷ is on	Press ►► once or ❚❚.
When ◁ is on	Press ►► twice.

To record on the reverse side of the cassette	
When ◁ is on	Press ◄◄ once or ❚❚.
When ▷ is on	Press ◄◄ twice.

To stop recording
Press the ■ button.

Set the TIMER switch to OFF
Otherwise, recording will start automatically when the power is turned on.

To start recording while the cassette holder is open
If you press the ● button while the cassette holder is open, the holder will close automatically and the unit will switch to recording pause mode. This function allows you to start recording at a moment's notice.

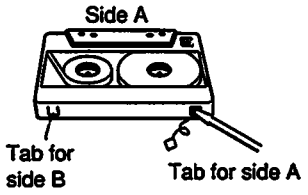
Checking the recording time on a tape
To check the remaining recording time on a tape:
1 Press the RESET button to reset the counter to 0.00.
2 Press ◄◄ or ►► to advance the tape to its end. The number on the counter shows the approximate recording time.

To check the total recording time of a tape, first rewind the tape to its beginning, then follow the same steps as above. (See "The Accuracy of the Linear Counter" on page 10.)

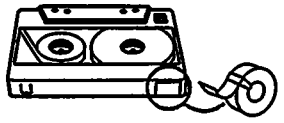
To start recording after rewinding the tape
If you press the record button during rewinding of the tape, the Record Muting function activates, the tape is partially advanced and the unit enters recording pause mode.

To Protect a Recording

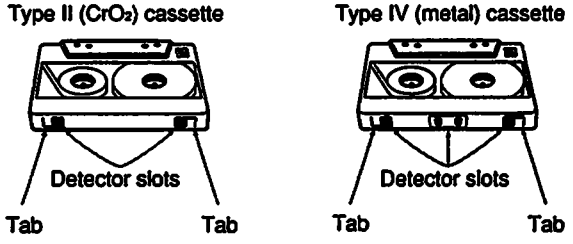
To protect a recording on side A or B
Break out the respective tab.



To recover a cassette for recording
Cover the respective slot with tape.



When using Type II (CrO_2) or Type IV (metal) cassettes
Be careful not to cover the detector slots which are necessary for automatic tape detection.

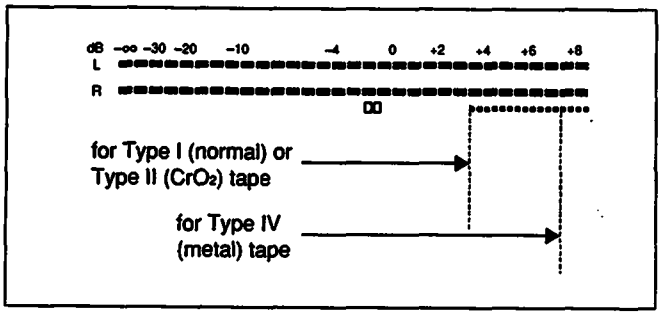


Cassette care
- Avoid touching the tape surface of a cassette to prevent contamination of the heads by dirt, dust, or oil on the skin.
- Keep cassettes away from equipment with magnets, such as speakers and amplifiers, as erasure or distortion on the recorded tape could occur.
- Do not expose cassettes to direct sunlight, extremely cold temperatures or moisture.

Note on cassettes longer than 90 minutes
The use of cassettes longer than 90 minutes is not recommended except for long continuous playback.

Adjusting the Recording Level

The optimum recording level, which differs according to the tape type, is indicated on the peak level meter for each tape type.
Adjust the REC LEVEL control as high as possible without exceeding the recommended range for the tape type being used. (See diagram.)



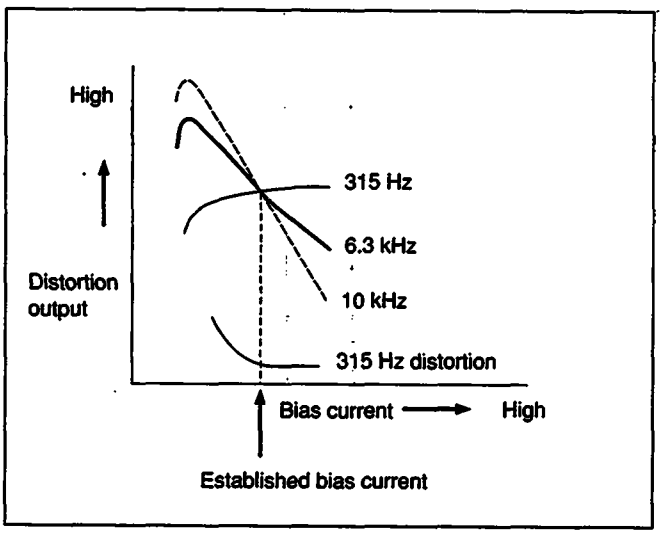
Tips on recording level adjustment
Setting the recording level too low will produce a hissing sound, while setting it too high will produce distortion. Generally, the optimum recording level for high and low frequencies is lower than that for middle frequencies. Therefore, when recording program sources with many high and low frequencies, you should set the level to a relatively low position. For even better results, check the recording results with your own ear.

Recording FM Broadcasts With the Dolby NR System

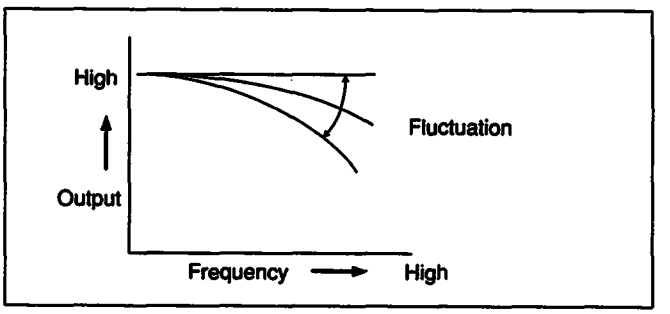
When recording FM broadcasts with the DOLBY NR system, set the MPX FILTER button to ON (the FILTER indicator appears).
The MPX filter eliminates remnants of the 19-kHz stereo carrier and 38-kHz subcarrier signals which may impair the operation of the DOLBY NR system. Be sure that the Dolby NR switch is turned on since the MPX filter will not function otherwise. During recording with the Dolby NR system, use this switch only if the tuner is not equipped with its own MPX filter or the equipped filter does not function effectively.

What Is the Dolby HX PRO System?

The Dolby HX PRO system provides improved linearity in high-range frequency response during recording. Tapes recorded with this system retain the same high quality even when played back on other tape decks.
As shown below, characteristics such as output level and distortion differ widely according to the bias (high-frequency) current.



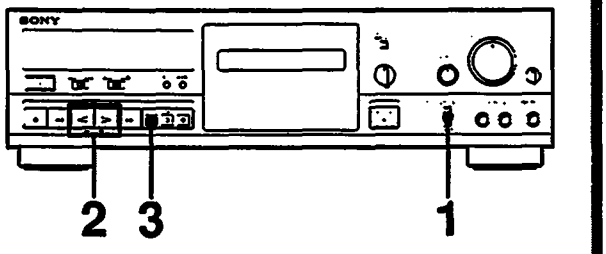
In conventional systems (see diagram below), the bias current is susceptible to variations in certain recording signals which may cause fluctuations in frequency response, distortion, or other unwanted characteristics.



With the Dolby HX PRO system, the effective bias amount added to the bias current is controlled in millisecond units to greatly reduce distortion, improving linearity in high-range response and ensuring high-intensity recording with minimal distortion and noise.

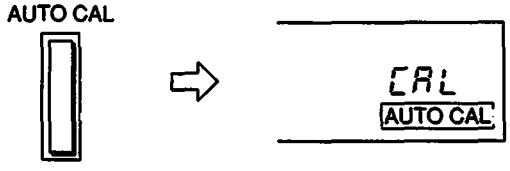
Making an Optimum Recording

Cassettes are available in several types, each with varying magnetic properties. In addition to the Automatic Tape Selection (ATS) system which sets the appropriate equalization characteristics, bias current and recording level for each tape type, the automatic calibration function can be used to obtain more optimum recording conditions for your tape, especially in conjunction with the Dolby NR system.



1 **Press AUTO CAL.**

The AUTO CAL indicator on the display panel lights up, CAL appears on the counter and the unit enters recording pause mode.



2 **Press ► or ◄ to select the side to be recorded.**

To select the front side, press ►.
To select the reverse side, press ◄.
See "If the cassette is record protected" on this page.

3 **Press II.**

The unit fastwinds a short distance, the counter begins counting down from 9 to 0 and the unit performs recording, rewinding and playback as part of the calibration process.

After automatic calibration is completed, the tape rewinds to the original position, the counter returns to normal and the unit enters stop mode.

4 **Continue with step 3 on page 11 to record a source.**

To cancel the automatic calibration function
Press the ■ button.

Notes on recalibration
As long as the unit remains on, all generated calibration data are saved and applied by the system whenever a cassette of the same type (I, II or IV) is inserted.
The AUTO CAL indicator lights up when previous calibration data are being applied. However, since cassettes of the same type also vary in their characteristics, recalibration is recommended each time a new cassette is inserted.

To recalibrate:
1 Insert the new cassette for recording.
The AUTO CAL indicator lights up.
2 Press AUTO CAL.
The AUTO CAL indicator goes off and the previous calibration data for that tape type are temporarily restored.
3 Continue from step 1 of the automatic calibration procedure.

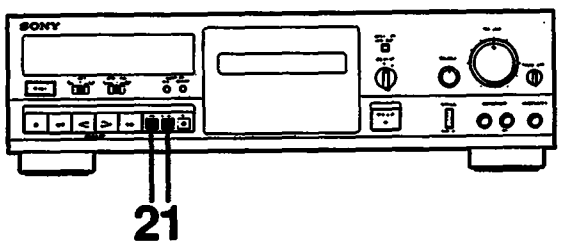
If the cassette is record protected
- If both tabs have been removed (see page 12), the AUTO CAL indicator flashes three times and automatic calibration cannot be performed.
- If only the current side is protected, the direction indicator for the other side flashes and calibration is possible only in that direction.
- If an attempt is made to change from an unprotected to a protected side in step 2, the unit will not respond and automatic calibration is possible only in the current direction.

Notes
- Since a test tone is recorded on the tape during automatic calibration, previously recorded material is erased where the test tone is recorded.
- Relatively new tape and clean heads are recommended for best calibration results. Excessively worn tape or dirty heads may result in incorrect calibration values.
- All calibration data saved in the system are lost when the unit is turned off.
- The automatic calibration function works only when the unit is stopped.
Playback and recording are disabled during automatic calibration.
- It is unnecessary to select the Dolby NR system when performing automatic calibration since the calibration results are the same regardless of the Dolby NR system.
- Automatic calibration is not applicable during timer-activated recording since setting the timer automatically cuts off the power to the unit, erasing the calibration data as a result.

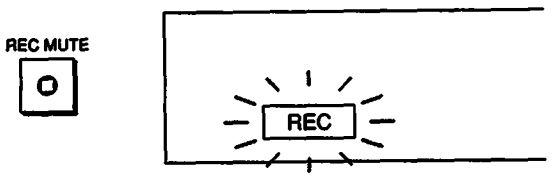
The AUTO CAL indicator flashes continuously
The automatic calibration process has been interrupted by:
— The end of the tape. Reverse the tape direction or fastwind to a new position that allows recording of the test tone.
— Damaged tape or dirty heads. Change the cassette or clean and demagnetize the heads.

Inserting a Blank Space During Recording — Record Muting

The Record Muting function allows you to insert a four-second blank to enable proper Multi-AMS operation (see page 8), and to replace unwanted input with a blank of any desired length.



1 While recording, press ○ and release it immediately.



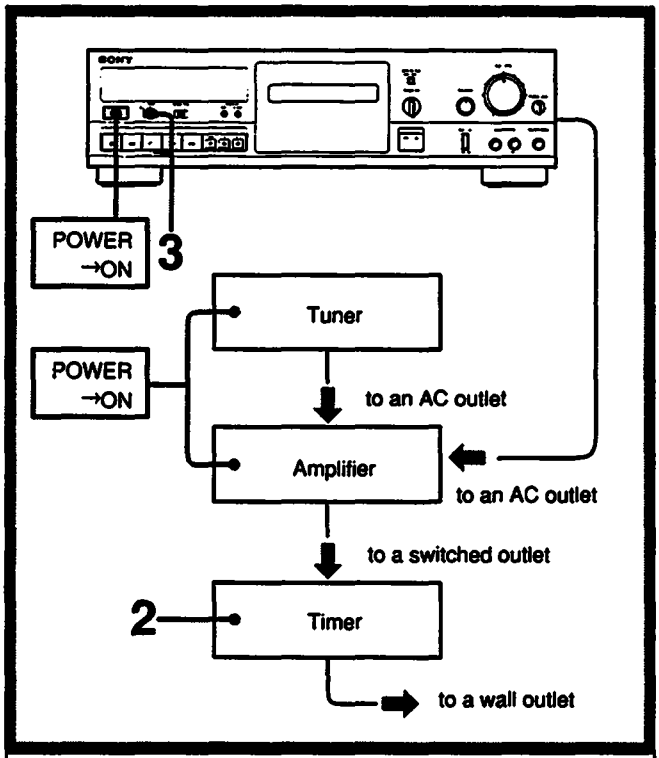
The REC indicator starts to flash. During this time, no incoming signals are recorded on the tape.
After four seconds, the ❚❚ indicator lights up and the unit enters recording pause mode.

2 Press ❚❚ to resume recording.

To create a blank longer than four seconds
Press the ○ button for the desired length of time. After four seconds, the REC indicator flashes with greater rapidity. When you release the ○ button, the ❚❚ indicator lights up and the unit goes into recording pause mode.
Press the ❚❚ button to resume recording.

Timer-Activated Playback and Recording

By connecting an optional timer, recording or playback can be performed automatically at a preset time.



1 **Prepare the unit for playback or recording.**

For playback	Follow steps 1 through 4 on page 7.
For recording	Follow steps 1, then 3 to 8 on page 11 (see note).

After completing the preparations, press ■ to change the unit to stop mode.
Make sure to close the holder completely.

2 **Set the timer to the desired time.**
Power to the tape deck will be cut off.

3 **Set TIMER to PLAY or REC.**
Playback or recording will start at the preset time.

Keep the POWER switch on the unit on
When the timer is set, the power to the unit will be cut off. However, the POWER switch must be on to start timer-activated operation.

When the timer-activated operation is completed
Set the TIMER switch on the unit to OFF. If the TIMER switch is left at REC, the unit will automatically start recording the next time the power is turned on, and the previously recorded material may be erased.

Note
Automatic calibration is not applicable during timer-activated recording (see page 14).
For this reason, skip step 2 when preparing the unit for recording.

Maintenance

Cleaning the Heads and Tape Path

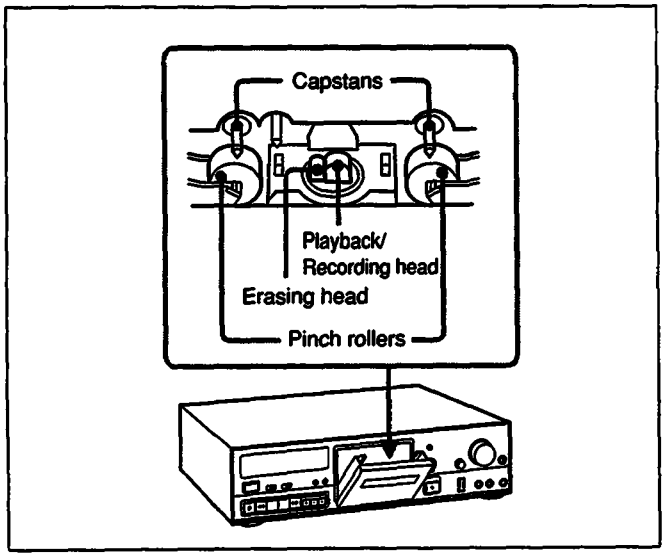
Clean all surfaces over which the tape travels after every ten hours of operation to guard against:
- — low-quality sound
- — a decrease in sound level
- — excessive wow, flutter or drop-out
- — incomplete erasure
- — impairment of recording function

To obtain high-quality recorded sound, cleaning before every recording is recommended.

1 With the unit turned off, hold down ⏏ and press the POWER switch. This causes the holder to open, the heads to rise and the pinch rollers to rotate.

2 Wipe the heads, the pinch rollers and the capstans with a cotton swab slightly moistened with alcohol or a commercially available cleaning fluid for tape decks.

Clean the entire surface of the pinch rollers and capstans while they are rotating, making sure that the cotton swab does not get caught in the mechanism. Press the ◄◄ or ►► button to switch pinch rollers.



3 When completed, press ⏏ again.

Do not insert a cassette until the cleaned areas are completely dry.

Demagnetizing the Heads

After 20 to 30 hours of use, or when you notice hiss and/or loss of high frequencies, the residual magnetism built up on the heads should be removed.

1 With the unit turned off, hold down ⏏ and press the POWER button to open the holder. Confirm that the heads have risen, then press the POWER button again.

2 Demagnetize the heads with any commercially available demagnetizer.

Note:
A cassette holder that is opened during normal deck operations will close when the power is turned off.

Refer to the instruction manual of the demagnetizer for detailed instructions.

Cleaning the Cabinet

Clean the cabinet, panel and controls with a soft cloth slightly moistened with a mild detergent solution.
Do not use any type of abrasive pad, scouring powder or solvents such as alcohol or benzine.

Specifications

Recording system	4-track 2-channel stereo
Fast winding time	Approx. 90 sec. (with Sony C-60 cassette)
Bias	AC bias
Heads	Erasing head × 1 (ferrite head) Playback/Recording head × 1 (LA head)
Motors	Capstan motor × 1 (DC servo motor) Reel motor × 1 (DC motor) Assist (mechanism drive) motor × 1 (DC motor)

Signal-to-noise ratio (at peak level and weighted)

Cassette (Dolby NR off)	Type IV	Type II	Type I
	59 dB	58 dB	56 dB

S/N ratio improvement (approximate values)
With Dolby B NR on : 5 dB at 1 kHz; 10 dB at 5 kHz
With Dolby C NR on : 15 dB at 500 Hz; 20 dB at 1 kHz
With Dolby S NR on : 10 dB at 100 Hz; 24 dB at 1 kHz

Harmonic distortion 0.4% (with Type I, 160 nWb/m, 315 Hz, 3rd H.D.)
1.8% (with Type IV, 250 nWb/m, 315 Hz, 3rd H.D.)

Frequency response (Dolby NR off)

Type IV cassette	20 - 20,000 Hz (±3 dB, IEC) 30 - 15,000 Hz [±3 dB (-4dB recording)]
Type II cassette	25 - 18,000 Hz (±3 dB, IEC)
Type I cassette	25 - 16,000 Hz (±3 dB, IEC)

Cassette
Type IV : Sony ES-IV
Type II : Sony UX-S or UX
Type I : Sony HF-S

Wow and flutter ±0.09% W.Peak (IEC)
0.06% W.RMS (NAB)
±0.16% W.Peak (DIN)

Inputs

Line inputs (phono jacks)	Sensitivity	0.16 V
	Input impedance	47 k ohms
Microphone inputs (phono jacks)	Sensitivity (For a low-impedance microphone)	0.4 mV

Outputs

Line outputs (phono jacks)	Rated output level	0.5 V at a load impedance of 47 k ohms
	Load impedance	Over 10 k ohms
Headphones (stereo phone jack)	Output level	0 - 3 mW at a load impedance of 32 ohms

General

Power requirements	120 V AC, 60 Hz
Power consumption	20 W
Dimensions	Approx. 430 × 123 × 306 mm (w/h/d) (17 × 4⅞ × 12⅛ inches) including projecting parts and controls
Mass	Approx. 4.8 kg (10 lbs 10 oz)

Supplied accessories
Audio connecting cords (2)

Design and specifications are subject to change without notice.

Troubleshooting Guide

The following trouble checks will help you correct the most common problems encountered with your tape deck. Should any problems persist after you have made these checks, consult your nearest Sony dealer.

Before proceeding with these trouble checks, verify that:
- The power cord is firmly connected.
- Amplifier connections are firmly made.
- Heads, capstans and pinch rollers are clean.
- The amplifier controls and switches are set correctly.

Function Buttons and Tape Transport Problems

Symptom	Cause	Remedy
The function buttons do not activate.	The cassette holder is not fully closed.	Close the holder completely.
	The cassette is not properly inserted.	Insert cassette correctly.
	Button was pressed immediately after the power was turned on.	Wait until the ▮▮ indicator stops flashing.
Playback or recording begins when the power is turned on.	The TIMER switch is not set to OFF.	Set the TIMER switch to OFF.
The ● button does not activate.	There is no cassette in the holder.	Insert a cassette.
	A tab has been removed from the cassette.	Cover the slot with tape (page 12).
Automatic shut-off mechanism activates before the tape comes to its end.	The tape is slack.	Take up the tape slack.
	The cassette shell is deformed.	Use another cassette.
	The Memory Play function is activated.	Press the MEMORY button to deactivate the function.
Excessively loud tape transport noise during fast winding.	This noise is caused by the cassette and does not signify a mechanical problem.	—
The cassette holder will not close.	There has been a power failure or the power cord has been disconnected while the cassette holder is open.	Reconnect the power.
The ⏏ botton does not function.	There has been a power failure or the power cord has been disconnected.	Reconnect the power.

(Continued on next page.)

Troubleshooting Guide

(Continued from previous page.)

Recording and Playback Problems

Symptom	Cause	Remedy
Recording or playback cannot be made or there is a decrease in sound level.	The heads are either dirty or magnetized.	Clean or demagnetize the heads (page 17).
	Improper connection.	Make connections properly (page 5).
	Improper setting of the amplifier controls.	Set the amplifier controls to the appropriate positions.
Excessive wow, flutter or drop-out.	The head, capstan or pinch roller is dirty.	Clean in accordance with instructions on page 17.
Incomplete erasure.	The erasing head is dirty.	Clean the erasing head (page 17).
Increased noise or poor reproduction in high frequencies.	The heads are magnetized.	Demagnetize the heads (page 17).
Unbalanced tone in high frequencies.	Improper setting of the DOLBY NR switch.	During playing back, set the switch to the same position used in recording.
	The unit is placed near a television set.	Move the unit away from the television set.
The desired selection cannot be located even though you activate the Multi-AMS.	There is noise in the space between selections. The space is less than four seconds long.	Rerecord the tape if you can, and insert a blank space of four seconds using the ○ button (page 15).
	The ▶▶ (or ◀◀) button was pressed immediately before the beginning of the following selection.	—
Playback begins in the middle of the selection when the Multi-AMS is activated.	The selection contains one of the following: — a long pause in the music — a passage of low frequencies or very low volume — a gradual increase or decrease in volume.	While the tape is playing, press the ▶▶ or ◀◀ button again.

Noise

Symptom	Cause	Remedy
Hum noise.	The unit is stacked on or under the amplifier.	Separate the unit.
Noise is recorded.	The recording was made near equipment such as a television set or a color monitor, and interference has affected the recording on the tape and the Dolby NR system.	Move the unit away from the television set or color monitor.

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